

**PART 70 MINOR SOURCE MODIFICATION**

**OFFICE OF AIR MANAGEMENT**  
**and**  
**INDIANAPOLIS ENVIRONMENTAL RESOURCES**  
**MANAGEMENT DIVISION**  
**AIR QUALITY MANAGEMENT SECTION**

**Indianapolis Power and Light Company**  
**DTE Georgetown, LLC**  
**8198 Georgetown Road**  
**Indianapolis, IN 46268**

Four (4) General Electric simple cycle, natural gas-fired combustion turbines (EU GT1, GT 2, GT 3 and GT4) rated at 88.4 MW each at peak load (59 degrees Fahrenheit at 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of IAPCB Regulation 2, 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP0990352-01	
Issued by:  Robert F. Holm, Ph.D., Administrator Environmental Resources Management Division	Issuance Date: 9-16-99

Minor Source Modification No.: 097-12335-0352	Pages affected: 4, 5, 6, 7, 10, 11
Issued by:  Mona A. Salem Chief Operating Officer Department of Public Works	Issuance Date:

3. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-6 (Transfer of Permits):

- (a) In the event that ownership of these turbines is changed, the Permittee shall notify the Environmental Resources Management Division, Air Quality Management Section and the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
- (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
- (c) The ERMD and OAM shall reserve the right to issue a new permit.

Permit Revocation

4. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-9(a) (Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) For any cause which establishes in the judgment of ERMD and IDEM, the fact that continuance of this permit is not consistent with purposes of IAPCB Regulation 2 (Permits) and 326 IAC 2-1 (Permit Review Rules).
- (e) Noncompliance with the orders issued pursuant to IAPCB Regulation 1-5 ( Emergency Reduction Plans) and 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

Availability of Permit

5. That pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit and all applicable records on the premises of the IPL Morris Street Building (the facility will be controlled remotely) and shall make this permit available for inspection by the ERMD, IDEM, or other public official having jurisdiction.

Performance Testing

6. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 326 IAC 12 (New Source Performance Standards) stack tests shall be performed on combustion turbines GT1, GT2, GT3, and GT4 to show compliance and verification with NOx emission rates within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Administrator.

- (a) A test protocol shall be submitted to the OAM, Compliance Data Section, and ERMD, Air Quality Management Section, Compliance Data Group, 35 days in advance of the test.

- (b) The OAM, Compliance Data Section, and ERMD, Compliance Data Group, shall be notified of the actual test date at least two (2) weeks prior to the date.
- (c) All tests reports must be received by OAM, Compliance Data Section, and ERMD, Compliance Data Group, within 45 days of completion of the testing.
- (d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM and ERMD that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.
- (e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

Malfunction Condition

7. That pursuant to IAPCB Regulation 1-6-2 (Malfunctions and scheduled maintenance) and 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Environmental Resources Management Division (ERMD), upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to ERMD, using the Malfunction Report Forms(2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of IAPCB Regulation 1-6 and 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in IAPCB Regulation 1-6-2(a)(1) through (6) and 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [IAPCB Regulation 1-2-39 and 326 IAC 1-2-39]

40 CFR 60, Subpart GG (Stationary Gas Turbines):

8. The gas turbines (EU GT1, GT2, GT3, and GT4) are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.330, (Subpart GG)), since the heat input capacity is greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

- (a) Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

- (1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$\text{STD} = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

- (2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;
- (3) Pursuant to 40 CFR Part 60 Subpart GG and pursuant to the custom schedule for natural gas firing allowed by 40 CFR 60.334(b) and approved by IDEM on December 28, 1998 for the Gas Turbines at IPL's E. W. Stout Generating Station, the Permittee shall monitor the sulfur content and nitrogen content of the fuel being fired in Emission Units IDs GT1, GT2, GT3, and GT4, according to 40 CFR 60.335. The frequency of determination of these values shall be as follows:

For natural gas:

- (i) The sulfur and nitrogen content of natural gas shall be obtained and analyzed within thirty (30) days of each one (1) billion standard cubic feet landmark consumption period. Reporting of the results shall be done quarterly for the quarter in which the analysis was performed. Sampling and analysis of the natural gas shall be performed according to 40 CFR 60.335 (d).

- (4) report periods of excess emissions, as required by 40 CFR 60.334(c).

#### Emergency Reduction Plans

9. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

and

Environmental Resources Management Division  
Air Quality Management Section, Compliance Data Group  
2700 South Belmont Avenue  
Indianapolis, Indiana 46221-2097

within ninety (90) calendar days from the date on which this source commences operation.

- (c) If the ERP is disapproved by IDEM, OAM and ERMD, the Permittee shall have an additional

thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM ERMD shall supply such a plan.

- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.
- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by IDEM, OAM and ERMD, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

PSD Minor Source Limit

10. The following limitations will ensure this source stays below 250 tons per year of all criteria pollutants, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

- (a) Gas Turbines GT1, GT2, GT3, and GT4 combined natural gas consumption will be limited to 5,570 million standard cubic feet per 12 consecutive months rolled on a monthly basis, which is equivalent to NO<sub>x</sub> emission below 250 tons per year.

This limit is based on the manufacturer's maximum NO<sub>x</sub> emission rate of 79 pounds per hour for each Gas Turbine GT1, GT2, GT3, and GT4, which is to be verified during the initial stack test in accordance with condition 6.

These limitations will ensure this source stays below 250 tons per year of NO<sub>x</sub> such that the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

NO<sub>x</sub> is the constraining pollutant. Therefore, restrictions on the fuel (natural gas) throughput to restrict NO<sub>x</sub> emissions to below 250 tons per year would, effectively, limit all other pollutants, or

- (b) As an alternative to (a), after the initial stack test, during which the manufacturer's hourly emission rates are to be verified, the permittee can report the NO<sub>x</sub> mass emissions in accordance with the procedures regulated by 40 CFR Part 75. These recordkeeping and reporting procedures require an emissions reporting system fully certified by ERMD, IDEM and EPA under 40 CFR Part 75.
- (c) Carbon Monoxide (CO)  
Turbines GT1, GT2, GT3, and GT4 shall be limited to less than 250 tons per year via the emission limitation and reporting system developed for NO<sub>x</sub> emissions, the constraining pollutant for this project. This limitation will ensure this source stays below 250 tons per year of CO, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

Annual Emission Reporting

11. That pursuant to IAPCB Regulation 2-6 (Annual emission statement rule) and 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the facility.

## Affidavit of Construction

I, \_\_\_\_\_, being duly sworn upon my oath, depose and say:  
(Name of the Authorized Representative)

1. I live in \_\_\_\_\_ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of \_\_\_\_\_ for \_\_\_\_\_.  
(Title) (Company Name)
3. By virtue of my position with \_\_\_\_\_, I have personal  
(Company Name)  
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of \_\_\_\_\_.  
(Company Name)
4. I hereby certify that **the Indianapolis Power and Light Company , DTE Georgetown, LLC (Georgetown Substation Generating Plant)** has constructed the **Gas Turbine GT4** in conformity with the requirements and intent of the First Minor Source Modification application received by the Environmental Resources Management Division on April 19, 2000 and as permitted pursuant to the **First Minor Source Modification 097-12335-00352**, issued on \_\_\_\_\_.
5. Additional operations/facilities were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit. (Delete this statement if it does not apply).

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

STATE OF INDIANA)  
)SS

COUNTY OF \_\_\_\_\_ )

Subscribed and sworn to me, a notary public in and for \_\_\_\_\_ County and State of Indiana  
on this \_\_\_\_\_ day of \_\_\_\_\_.

My Commission expires: \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name (typed or printed)

Indianapolis Power and Light Company, DTE Georgetown, LLC  
Georgetown Substation Generating Plant  
Indianapolis, Indiana  
Permit Reviewer: Boris Gorlin

First Minor Source Modification

Page 11 of 11  
CP0990352-01  
097-12335-00352  
Plt ID 09700352

**City of Indianapolis  
Environmental Resources Management Division  
Compliance Data Group  
2700 S. Belmont Ave.  
Indianapolis, Indiana 46221-2097  
Phone 317 / 327-2234, Fax: 317 / 327- 2274**

**Malfunction / Excess Emissions Report**

Company Name: **Indianapolis Power and Light Company, DTE Georgetown, LLC**

Location: **8198 Georgetown Road, Indianapolis, IN 46268**

Construction Permit No.: CP 0990352-01,

Source/Facility: **Four (4) General Electric simple  
cycle, natural gas-fired combustion  
turbines (GT1, GT 2, GT 3 and GT4)**

First Minor Source Modification No.: 097-12335-00352

Control/Device Which Malfunctioned:
Affected Facility:
Date of Malfunction:
Start Time of Malfunction:
Duration Time of Out of Service: Pollutant/s Emitted During Malfunction: PM, PM10, SO <sub>2</sub> , VOC, Other: Estimate of Amount of Pollutant Emitted During the Malfunction (include how estimate was determined):
Measures Taken to Minimize Shutdown Time:
Reasons Why Facility Cannot be Shutdown During Repairs:
Interim Control Measures:
Measures Taken to Correct Malfunction:
Malfunction Reported By: Title: Signature:
Date: Time:

The filing of such information is mandated by Federal, State, and Local Air Pollution Legislation. Violation of this mandate through omission or false information may be subject to penalty.

I hereby certify that the information contained in this notification is complete and accurate to the best of my knowledge.

Submitted by: \_\_\_\_\_ Title/Position: \_\_\_\_\_  
(Print)  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Indiana Department of Environmental Management  
Office of Air Management  
and  
Indianapolis Environmental Resources Management Division**

**Technical Support Document (TSD) for a Part 70 Minor Source  
Modification.**

**Source Background and Description**

<b>Source Name:</b>	<b>Indianapolis Power and Light Company DTE Georgetown, LLC</b>
<b>Source Location:</b>	<b>Georgetown Substation Generating Plant 8198 Georgetown Road, Indianapolis, IN 46268</b>
<b>County:</b>	<b>Marion</b>
<b>SIC Code:</b>	<b>4911</b>
<b>Construction Permit No.:</b>	<b>CP099-0352-01</b>
<b>First Minor Source Modification No.:</b>	<b>097-12335-00352</b>
<b>Permit Reviewer:</b>	<b>Boris Gorlin</b>

The Indianapolis Environmental Resources Management Division (ERMD) has reviewed a modification application from the Indianapolis Power and Light Company, DTE Georgetown, LLC relating to the construction of the following emission units and pollution control devices:

- (a) One (1) General Electric simple cycle combustion powered electric generator (Emission Unit ID GT4), rated at 88.4 MW at peak load @ 59 degrees Fahrenheit and 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

**History**

On September 16, 1999, the source was issued a Construction Permit for three (3) General Electric simple cycle combustion powered electric generators (EU GT1, GT2 and GT3) rated at 88.4 MW at peak load @ 59 degrees Fahrenheit and 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

This existing source is currently operating as a synthetic minor source, subject to NSPS 40 CFR Part 60, Subpart GG for stationary gas turbines. The source is required to apply for the Part 70 Permit within 12 months after the source becomes subject to the Title V.

On April 7, 2000, Indianapolis Power and Light Company, DTE Georgetown, LLC submitted an application to the ERMD requesting to add one (1) General Electric simple cycle combustion powered electric generator (Emission Unit ID GT4) to their existing plant.

**Enforcement Issue**

There are no enforcement actions pending.



### Stack Summary

Stack ID	Operation	Height (feet)	Dimensions (feet)	Flow Rate (scfm)	Temperature (°F)
GT4	CT4	56	9' x 19'	523,615	1063

### Recommendation

The staff recommends to the Commissioner that the Part 70 First Minor Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on April 7, 2000.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (one page).

### Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.”

This table reflects the modification unlimited PTE before controls.

Pollutant	Potential To Emit (tons/year)
PM	21.9
PM-10	21.9
SO <sub>2</sub>	2.716
VOC	7.884
CO	227.8
NO <sub>x</sub>	346.0

HAP's	Potential To Emit (tons/year)
Formaldehyde	2.365
TOTAL	2.365

### Justification for Modification

The Construction Permit CP 0990352-01 is being modified through a Part 70 Minor Source Modification. This modification is being performed pursuant to 326 IAC-2-7-10.5(d) as a modification that has a potential to emit greater than the thresholds under subdivision (4) that adds an emissions unit of the same type that are already permitted and that will comply with the same applicable

requirements and permit terms and conditions as the existing emission unit or units.

### County Attainment Status

The source is located in Marion County.

Pollutant	Status
PM-10	Attainment
SO <sub>2</sub>	Maintenance
NO <sub>2</sub>	Attainment
Ozone	Maintenance
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Marion County has been classified as attainment or unclassifiable for all the criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

### Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	<250
PM10	<250
SO <sub>2</sub>	<250
VOC	<250
CO	<250
NO <sub>x</sub>	<250
Single HAP	<10
Combination HAPs	<25

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon the Construction Permit CP 099-0352-01, issued on September 16, 1999.

### Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission

units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

The sourcewide emissions limits after modification (four generators) will stay the same as in the original Construction Permit CP 099-0352-01 (three generators).

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Three (3) Natural Gas electric generators EU GT1 - GT3 (combined) - <b>existing source</b>	15.823	15.823	1.962	5.696	164.56	<250	1.709
Four (4) Natural Gas electric generators EU GT1 - GT4 (combined) - <b>after modification</b>	15.823	15.823	1.962	5.696	164.56	<250	1.709
Emission Increase	0	0	0	0	0	0	0

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

#### Federal and State Rules Applicability

All the Federal and State Rules applicable to the existing gas turbines GT1, GT2 and GT3 are applicable to the new proposed turbine GT4. No other rules apply.

#### Construction Permit Changes

The following changes were made in the Construction Permit CP 0990352-01.

Front Page:

~~Three (3)~~ **Four (4)** General Electric simple cycle, natural gas-fired combustion turbines (EU GT1, GT2, ~~and GT3~~ **and GT4**) rated at 88.4 MW each at peak load (59 degrees Fahrenheit at 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

Minor Source Modification No.: 097-12335-0352	Pages affected: 4, 5, 6, 7, 10, 11
Issued by:  Mona A. Salem Chief Operating Officer Department of Public Works	Issuance Date:

Page 4 (Condition 6):

#### Performance Testing

- That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-3 (Construction and Operating

Permit Requirements) and 326 IAC 12 (New Source Performance Standards) stack tests shall be performed on combustion turbines GT1, GT2, ~~and~~ GT3, **and** GT4 to show compliance and verification with NO<sub>x</sub> emission rates within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Administrator.

Page 5 (Condition 8):

40 CFR 60, Subpart GG (Stationary Gas Turbines):

8. The gas turbines (EU GT1, GT2, ~~and~~ GT3, **and** GT4) are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.330, (Subpart GG)), since the heat input capacity is greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

Page 6 (Condition 8(a)(3)):

- (3) Pursuant to 40 CFR Part 60 Subpart GG and pursuant to the custom schedule for natural gas firing allowed by 40 CFR 60.334(b) and approved by IDEM on December 28, 1998 for the Gas Turbines at IPL's E. W. Stout Generating Station, the Permittee shall monitor the sulfur content and nitrogen content of the fuel being fired in Emission Units IDs GT1, GT2, ~~and~~ GT3, **and** GT4, according to 40 CFR 60.335. The frequency of determination of these values shall be as follows:

Page 7 (Condition 10):

PSD Minor Source Limit

10. The following limitations will ensure this source stays below 250 tons per year of all criteria pollutants, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

- (a) Gas Turbines GT1, GT2, ~~and~~ GT3, **and** GT4 combined natural gas consumption will be limited to 5,570 million standard cubic feet per 12 consecutive months rolled on a monthly basis, which is equivalent to NO<sub>x</sub> emission below 250 tons per year.

This limit is based on the manufacturer's maximum NO<sub>x</sub> emission rate of 79 pounds per hour for each Gas Turbine GT1, GT2, ~~and~~ GT3, **and** GT4, which is to be verified during the initial stack test in accordance with condition 6.

These limitations will ensure this source stays below 250 tons per year of NO<sub>x</sub> such that the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

NO<sub>x</sub> is the constraining pollutant. Therefore, restrictions on the fuel (natural gas) throughput to restrict NO<sub>x</sub> emissions to below 250 tons per year would, effectively, limit all other pollutants, or

- (b) As an alternative to (a), after the initial stack test, during which the manufacturer's hourly emission rates are to be verified, the permittee can report the NO<sub>x</sub> mass emissions in accordance with the procedures regulated by 40 CFR Part 75. These recordkeeping and reporting procedures require an emissions reporting system fully certified by ERMD, IDEM and EPA under 40 CFR Part 75.
- (c) Carbon Monoxide (CO)  
Turbines GT1, GT2, ~~and~~ GT3, **and** GT4 shall be limited to less than 250 tons per year via

the emission limitation and reporting system developed for NOx emissions, the constraining pollutant for this project. This limitation will ensure this source stays below 250 tons per year of CO, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

Page 10 (Affidavit of Construction item 4 - only for the new proposed turbine GT4; the Affidavit of Construction for the existing turbines GT1, GT2 and GT3 has been submitted):

4. I hereby certify that **the** Indianapolis Power and Light Company , DTE Georgetown, LLC (Georgetown Substation Generating Plant) has constructed the **Gas Turbine GT4** in conformity with the requirements and intent of the First Minor Source Modification application received by the Environmental Resources Management Division on April 19, 2000 and as permitted pursuant to the **First Minor Source Modification 097-12335-00352**, issued on \_\_\_\_

Page 11 (Malfunction/Excess Emissions Report):

Construction Permit No.: CP 0990352-01,

Source/Facility: **Four (4)** General Electric simple cycle, natural gas-fired combustion

First Minor Source Modification No.: 097-12335-00352

turbines (GT1, GT 2, ~~and~~ GT3, **and GT4**)

# Appendix A: Emission Calculations

Page 1 of 1 (TSD App. A)

Emission Unit IDs GT1, GT2, GT3, and GT4 (new) General Electric
Natural Gas simple cycle combustion powered electric generators

Company Name: Indianapolis Power & Light Company, DTE Georgetown, LLC (Georgetown Substation Generating Plant)  
Address City IN Zip: 8138 Georgetown Road, Indianapolis, Indiana 46268  
Permit No.: 097-12335-00352 (Addition of the GT4 Gas Turbine)  
Plt ID: 097-00352  
Reviewer: Boris Gorlin

Natural Gas Heat Input Capacity MMBtu/hr		Potential Throughput		S = Weight % Sulfur 8.10E-04				
	One Turbine:	7,709	MMscf/yr					
	Three Turbines:	23,126	MMscf/yr					
	Four Turbines:	30,835	MMscf/yr					
924.0								
		Pollutant						
		PM10	SO2	NOx	VOC	CO	Formaldehyde	
		Manufact. Emission Rate in lb/hr (one turbine):	5	0.62	79	1.8	52	30% of VOC*
		Manufact. Emission Rate in lb/hr (3 turbines combined):	15	1.86	237	5.4	156	30% of VOC*
		Manufact. Emission Rate in lb/hr (4 turbines combined):	20	2.48	316	7.2	208	30% of VOC*
		Manufact. Emission Rate in lb/MMBtu:	0.00541126	0.000671	0.08550	0.0019481	0.0562771	0.00058
		PTE in tons/yr (3 turbines):	65.7	8.1468	1038.06	23.652	683.28	7.0956
		PTE in tons/yr (4 turbines):	87.6	10.8624	1384.08	31.536	911.04	9.4608
		PTE Increase from Modification (before limits), ton/yr:	21.9	2.7156	346.02	7.884	227.76	2.3652
		Limited Emissions, ton/yr:	250	250	250	250	250	10
		Total (3 turbines) Limited Fuel (Natural Gas) Throughput, MMscf/yr:	88,000	709,677	5,570	244,444	8,462	
		Total (4 turbines) Limited Fuel (Natural Gas) Throughput, MMscf/yr:	88,000	709,677	5,570	244,444	8,462	
		Emissions at NOx constrained fuel limit (3 turbines):	15.823	1.962	<250	5.696	164.56	1.709
		Emissions at NOx constrained fuel limit (4 turbines):	15.823	1.962	<250	5.696	164.56	1.709
Limited PTE Increase from Modification, ton/yr:	0.0	0.0	0.0	0.0	0.0	0.0		

## Methodology

Potential Throughput (MMscf/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hr/yr x 1MMscf / 1050 MMBtu

Emission Rates at peak conditions, lb/hr, are supplied by the source (manufacturer data).

Emission (tons/yr) = Emission Rate (lb/hr) x 8760 hr/yr x 1 ton/2,000 lb

\* Formaldehyde Emission is 30% of VOC (the EPA "Speciate" program).

Potential PM10 Emissions, ton/yr (3 turbines), ton/yr	65.7
or: grain/dscf (at 523,615x3=1,570,845 dscfm) =	0.001114

Potential PM10 Emissions, ton/yr (4 turbines), ton/yr	87.6
or: grain/dscf (at 523,615x4=2,094,460 dscfm) =	0.001114